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EXAMINER

ROBERTS, BRIAN S

ART UNIT PAPER NUMBER

2662

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/010,330

Applicant(s)

TAKEDA, KENJI

Examiner

Brian Roberts

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

- Applicant's Amendment filed 11/08/2001 is acknowledged.
- Claims 1-3, 6 and 7 have been amended.
- Claims 1-15 remain pending.

Claim Objections

1. Claims 1, 3, 6, 8 objected to because of the following informalities:
 - The limitation counter/data transmitter "for counting the number of round trips of data packets transmitted" is not supported by the specification. According to the specification, "When the counter value added to a received ACK message is equal to the current counter value, ACK processing means increases the counter value by one" (abstract). The counter does not count the number of round trips of data packets transmitted because while the data packets are transmitted from a data transmitter to a data receiver, they are not transmitted back to the data transmitter from the data receiver. The data packets never make a round trip. Instead, data packets are transmitted from a data transmitter to a data receiver and then ACK packets are transmitted from the data receiver to the data transmitter. Appropriate correction is required to clearly distinguish that a round trip consists of a data transmitter transmitting a data packet to a data receiver and the data receiver transmitting an ACK message in response to the received data packet to the data transmitter.

- In reference to claims 2, 4, 7, and 9

Claims 2, 4, 7, and 9 are objected to as depending on 1, 3, 6, and 8, respectively.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-8, 10-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu et al. (US 5570367) in view of Stallings.

- In reference to claims 1, 6, and 11

Ayanoglu et al. teaches a data communication system, a data communication method and computer program that includes:

- A packet with a header which includes a packet identification number (column 3 lines 24-25)
- Generating packet identification numbers in a sequential manner inherently with a counter (column 3 lines 24-28)
- Recording the packet identification number in a status array (column 3 lines 37-43)
- Retransmission of packets that are lost (abstract)

Ayanoglu et al. does not teach judging a packet to be lost when stored counter value is two or more smaller than the current counter value.

Stallings teaches a transmission control protocol implementing a fixed sliding-window scheme. (page 550) fixed sliding-window of two prevents more than two packets being sent without receiving an acknowledgement for each of the two packets.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Ayanoglu et al. to include fixed sliding-window as taught by Stallings to retransmit a packet when the packet identification numbers stored in the status array is two or more smaller than the sequence counter because a transmission window provides for a more efficient bandwidth utilization by allowing multiple packets to be transmitted rather than transmitting a packet then waiting for the packet to be acknowledged before transmitting a subsequent packet.

- In reference to claims 2, 7 and 12

Ayanoglu et al. teaches a data communication system, method and computer program that covers substantially all limitations of the parent claim. Ayanoglu et al. further teaches:

- A packet with a header which includes a packet identification number (column 3 lines 24-25)
- A status message which acknowledges reception of packets transmitted and contains the packet identification number of the packet (column 5 lines 4-8)

Ayanoglu et al. does not explicitly teach incrementing the counter by one when the packet identification number equals the stored packet identification number.

Stallings teaches a transmission control protocol implementing a fixed sliding-window where the counter is increased by one to allow transmission of a subsequent data packet when an ACK packet is received corresponding to a stored sequence number. (page 550)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Ayanoglu et al. to include a fixed sliding-window as taught by Stallings because a transmission window provides for a more efficient bandwidth utilization by allowing multiple packets to be transmitted rather than transmitting a packet than waiting for the packet to be acknowledged before transmitting a subsequent packet.

- In reference to claims 3, 8 and 13

Ayanoglu et al. teaches a data communication system, method and computer program that includes:

- A packet with a header which includes a packet identification number (column 3 lines 24-25)
- Generating packet identification numbers in a sequential manner inherently with a counter (column 3 lines 24-28)
- Generating a transmission time inherently with a clock

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- Recording the packet identification number and transmission time in a status array (column 3 lines 37-43)
- Retransmission of packets that are lost (abstract)

Ayanoglu et al. does not teach judging a packet to be lost when stored counter value is two or more smaller than the current counter value.

Stallings teaches a transmission control protocol implementing fixed sliding-window. (page 550) A fixed sliding-window of two prevents more than two packets being sent without receiving an acknowledgement for each of the two packets.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Ayanoglu et al. to include fixed sliding-window as taught by Stallings to retransmit a packet when the transmission time of a packet stored in the status array is two smaller than the clock corresponding to the counter value because the transmission time is simply another way to identify an individual packet and a transmission window provides for a more efficient bandwidth utilization by allowing multiple packets to be transmitted rather than transmitting a packet than waiting for the packet to be acknowledged before transmitting a subsequent packet.

- In reference to claims 5, 10 and 15

Ayanoglu et al. teaches a data communication system, method and computer program that includes:

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- Maintaining a window using a lower end pointer and an upper end pointer that defines the lowest numbered packet transmitted and acknowledged and the highest numbered packet transmitted

Ayanoglu does not explicitly teach the data transmitter functioning to release from the transmission window, a closed window to an extent corresponding to the total size of data, for which delivery confirmation has been newly made by ACK packets received from the data receiver during the error control, thereby rendering the released window transmittable.

Stallings teaches the use of a fixed sliding-window scheme that includes

- The use of sequence numbers on data units
- The use of a window of fixed size
- The use of acknowledgements to advance the transmission window where the transmission window is advanced according to the ACK packet received

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Ayanoglu et al. to include a fixed sliding-window scheme as taught by Stallings because a transmission window provides for a more efficient bandwidth utilization by allowing multiple packets to be transmitted rather than transmitting a packet then waiting for the packet to be acknowledged before transmitting a subsequent packet.

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4. Claims 4, 9, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ayanoglu et al. (US 5570367) in view of Stallings and further in view of Hamiti et al. (US 6751209)

- In reference to claims 4, 9 and 14

Ayanoglu et al. teaches a data communication system, method and computer program that covers substantially all limitations of the parent claim. Ayanoglu et al. further teaches:

- A packet with a header that includes a packet identification number (column 3 lines 24-25)
- A status message which acknowledges reception of packets transmitted and contains the packet identification number of the packet (column 5 lines 4-8)

Ayanoglu et al. does not teach judging a packet to be lost when stored time in an ACK packet is equal to or larger than the current time value stored.

Stallings teaches a transmission control protocol implementing a fixed sliding-window where the counter is increased by one to allow transmission of a subsequent data packet when an ACK packet is received corresponding to a stored sequence number. (page 550)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the system and method of Ayanoglu et al. to include a fixed sliding-window as taught by Stallings because a transmission window provides for a more efficient bandwidth utilization by allowing multiple packets to be transmitted rather

than transmitting a packet than waiting for the packet to be acknowledged before transmitting a subsequent packet.

The combination of Ayanoglu et al. and Stallings teaches a data communication system, method and computer program that covers substantially all limitations of the parent claim.

The combination of Ayanoglu et al. and Stallings does not teach inserting the transmission time into a packet.

In Figure 3, Hamiti et al. teaches inserting a time field (317) into a packet.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the data packet and status message of Ayanoglu et al. where the transmission time is recorded and insert the transmission time into a time field as taught by Hamiti et al. because the transmission time is simply another way to identify a individual packet since the transmission time for each packet is unique.

Response to Arguments

5. Applicant's arguments filed 11/18/2005 have been fully considered but they are not persuasive.

- In pg.1 of the Remarks, the Applicant contends that Ayanoglu et al. does not teach counting the number of round trips of data packets.
- The Examiner respectfully disagrees. As shown in Figure 3, Ayanoglu et al. teaches a counter (317) that updates upon receiving an ACK packet (316). As discussed previously discussed in the objection to claim 1, the counter of the

application does not count the number of round trips of data packets transmitted because while the data packets are transmitted from a data transmitter to a data receiver, they are not transmitted back to the data transmitter from the data receiver. The data packets never make a round trip. Instead, data packets are transmitted from a data transmitter to a data receiver and then ACK packets are transmitted from the data receiver to the data transmitter. The counter of the application counts the number of received ACK packets. Accordingly, the counter of Ayanoglu et al. reads upon the limitation because it updates in response to received ACK packets.

- In pg. 2 of the Remarks, the Applicant contends that the combination of Ayanoglu et al. and Stallings does not teach that the data transmitter releases, from the transmission window, a closed window to an extent corresponding to the total size of data, for which delivery confirmation has been newly made by ACK packets received from the data receiver during the error control, thereby rendering the released window transmittable.
- The Examiner respectfully disagrees. The combination of Ayanoglu et al. and Stallings provides for a transmission system and method where the transmission window can be of any length. In the case where the transmission window equals 1, the “closed window” equals one and corresponds to the total size of the data packet. In Figure 3 of Ayanoglu et al., after the cellular computing device transmits a data packet to the base

station, the cellular computing device must wait for an ACK from the base station before transmitting a subsequent packet. Upon the cellular computing device receiving an ACK packet from the base station, the closed window corresponding to the size of the total size of the acknowledged data packet becomes transmittable and the cellular computing device may transmit a subsequent data packet to the base station.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Aoki et al. (US 6757255) teaches an apparatus and method for measuring TCP communication performance.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Roberts whose telephone number is (571) 272-3095. The examiner can normally be reached on M-F 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BSR
02/02/2006


JOHN PEZZLO
PRIMARY EXAMINER